(193) Department

SERIES.

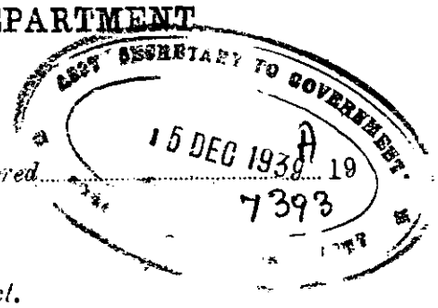
G.O. No. 2891
2891

Dated 1942-39

[Despatch Abstract.]

Part of Mangalore - Londubucha
Railway Arch Revised

DEPARTMENT



Received ..... 19 . *Registered* 19

Subject.

Port of Mangalore - Constructing a dry dock -
Revised estimate submitted.

ENCLOSURES.
No. 12 Sheets
Spare copies

No. 2735 A/39-1,

Station Madras, ..., *Dated the* 14th December 19 39.

From (Name) W.F. RUFFLE, ESQ.,
(Designation) Presidency Port Officer, Madras,

To The Secretary to the Government of Madras,
Public Works (Marine) Department.

Sir,

G.O.No.Ms.1946, Public Works (Marine) dated 19-8-1936.

I have the honour to submit a revised estimate with deviation statement amounting to Rs.1,13,144/- for the work of "Constructing a dry dock at Mangalore". The original estimate for Rs.1,18,641/- was sanctioned in G.O.No.Ms.1946, Public Works (Marine), dated 19th August 1936 on which there is a final saving of Rs.5497/-.

Owing to conditions arising during construction, variation in nature of sub-soil, breaching beneath the piles and collapse of old wharf wall, variations in the original

items of work have been necessary, and these have been entered in the revised estimate and explained in the deviation statement. pp 12-16 infra

I have the honour to request that the Revised estimate may be sanctioned and that the supplementary schedule which includes all items by way of extras and variation which have been tentatively accepted by me may be accepted and signed on behalf of His Excellency The Governor of Madras, as the original agreement was accepted and signed by the Secretary to Government.

I have the honour to be,
Sir,
Your most obedient servant,

W. L. Ruffle 13/12

Presidency Port Officer.

Detail of work. (1)	Number. (2)	Measurements in feet. Length. (3)	Breadth. (4)	Depth. (5)	Area or contents. (6)	Total quantity of each description of work. (7)
Constructing a Dry Dock at the Port of Mangalore						
Original estimate Rs.1,18,641/-					Revised estimate	Rs.1,13,144/-
I(a) Earthwork excavating foundations in reclaimed river mud and silt (slushy) necessitating the use of pans and baskets including 4 extra lifts and 49 extra ½ leads of 10 yards each.						
Excavating for dry dock	1	140	54	19.35	146286	
Deduct for rocky soil	1	45	30	Average 7	.9450	
					136836	137 Units.
I(b) Earthwork do. do. do. including 4 extra lifts of 1 yard and 4 extra leads of 10 yards.						
West end of dock	1	8	54	19.35	8359	
Brought in by breach at bottom of piles.	24	50	40	4	144000	
					152359	153 Units.
I(c) Excavating in quartz and hard laterite necessitating the use of crow bars, wedges and sledge hammers.						
At East end of dock.	1	45	30	Average 7	9450	94.50 Units.
II(a) Concrete in cement mortar for reinforced concrete, granite stone broken to ~~¾~~ ¼" mesh proportions 1 cement, 2 sand, 4 broken stone.						
Floor of dock from compression surface to neutral axis.	1	148	48	1 - 8	11840	

ESTIMATE FORM—Detail Measurements, etc.

Detail of work. (1)	Number. (2)	Measurements in feet. Length. (3)	Breadth. (4)	Depth. (5)	Area or contents. (6)	Total quantity of each description of work. (7)
II(a) Brought forward					11840	
Sill of dock	1	30	2	2 - 6	150	
Facings of side walls rear	2	148	0-- 4	15.85	1817	
Rear face of East end wall	1	48	0 - 4			
Interior face of side walls	2	142	0 - 4	24.10	2657	
Do. do. East end wall	1	37½	0 - 4			
At walls of gates	2	4	3 - 6	6	168	
Ends of side walls west end	2	Average 9 - 30	4	15.85	292	
In steps river end South	2	$\frac{6+2\frac{1}{2}}{2}$	2 1/3	4½	92	
Do. do. do.	2	1	1/3 2	2	8	
Do. do. North	1	$\frac{3\ 1/3+3}{2}$	2	3½	24	
Do. do. do.	1	4	$\frac{2+2/3}{2}$	2 1/6	12	
Do. East end do.	1	2	$\frac{2\frac{2}{3}+1\frac{2}{3}}{2}$	3	10	
Do. do.	1	2⅔	1 1/3	2	7	
					16977	170 Units.
II(b) Reinforced ~~concrete~~ concrete in cement mortar proportion 1:2:4, stone broken to maximum mesh of ¾" Reinforcement as per plan, including forms, etc. complete.						
Keel blocks	40	3 - 0	2 - 0	1 - 6	360	360 C.ft.
II(c) Irumbogum wood in squared blocks with ends bound in steel.						
Keel blocks	80	2	1	1	160	160 C.ft.
II(d) Concrete broken stone in cement mortar stone broken to 1" mesh, proportions 1:3:5.						
Floor of dock from bottom to neutral axis.	1	150	51	3 1/3	25500	255 Units.

Marine Form No. 6 (Inner)—502—2-1-37.

ESTIMATE FORM—Detail Measurements, etc.

Detail of work. (1)	Number. (2)	Measurements in feet. Length. (3)	Breadth. (4)	Depth. * (5)	Area or contents. (6)	Total quantity of each description of work. (7)
II(e) Concrete broken stone in cement mortar, stone broken to 1½" mesh proportions 1:4:8.						
Hearting of side walls	2	125½		Area 102.35	29579	
Do. in end wall	1	38		102.35		
Do. in walls outside dock gates.	2	17½		87.00	3045	
					~~3624~~ 32624	
Deduct for concrete proportions 1:2:4 in item II(a) above					4474	
					28150	281.50 Units.
III Cutstone 2 lines dressed in Cement mortar, proportions 1:2.						
Sill of dock gates	1	32	2	2½	160	
Sides of gate supports	2	Average 4	2½	13½	270	
					430	430 C.ft.
IV(a) Supplying and fitting dock gates to close a width of 30 ft: vide separate plan.						
Dock Gates	1	32		16	512	512 Sq.ft.
IV(b) Mild steel wrought and fixed for strengthening gates.						
Base of gates M.S.plates 27"x27"x ½"	4		2¼	49.50 lbs.	445.50	
Do. M.S.angles 4" x4" x ½"	4		2½	12.75 lbs.	127.50	
Top M.S. channels 6" x 3"	2		2½	12.41 lbs.	62.00	
M.S.Bolts and nuts with washers 7/8" diameter	12		1 1/3	3.454 lbs.	51.81	
M.S. straining rods 1½" diameter x 22¾"	2			141.50 lbs.	283.00	
					969.81	970 lbs.

ESTIMATE FORM—Detail Measurements, etc.

Detail of work. (1)	Number. (2)	Measurements in feet. Length. (3)	Breadth. (4)	Depth. (5)	Area or contents. (6)	Total quantity of each description of work. (7)
V(a) Constructing a suction well of concrete blocks 1 thick proportions 1 cement 2 sand 4 broken stone and 5' internal diameter.						
Well complete	1			24½	24½	24.5R.ft.
V(b) Teakwood wrought and put up with planks 1½" thick with leading complete.						
Cover for well	1	7 x 7	22 7 x 4		38½	38.5 S.ft
VI(a) Supplying and fitting electric pump as per separate specification including wiring etc. complete	"					
Pump.	1				1	No.1.
VI(b) Constructing a pump house.	1				1	No.1.
II(a) Conveying and delivery at site of M.R.C. rails for reinforcement.			11		L.	L.S.
VII(b) Supply and delivery at site of 1" diameter round mild steel bars for reinforcement.						
M. S. Bars.	436	18	2.67	lbs.	186 11/14	186 11/14
III(a) Supply of side groove trough steel sheet piles, Dorman, Long, Krupp make, type K II in lengths of 25 feet to extra area 150' x 54 with extra projection as shown on plan.						
Piling						

ESTIMATE FORM—Detail Measurements, etc. 1,002—15-1-38.

Detail of work. (1)	Number. (2)	Measurements in feet. Length. (3)	Breadth. (4)	Depth. (5)	Area or contents. (6)	Total quantity of each description of work. (7)
III(b) Conveyance and incidentals.						L.S.
IX(a) Hire of pile driving plant including driving, extraction etc.						L.S.
IX(b) Repairs to damaged plant.						L.S.
X Pumping during construction.						L.S.
XI(a) Tying back and strutting Labour and Material.						L.S.
XI(b) Earthwork excavating in reclaimed river mud and silt (slushy) necessitating the use of pans and baskets including 2 extra lifts of 3 Ft and 4 extra leads of 10 yards.						
Outside dock piling 3 sides to relieve pressure on piles.	1	250	$\frac{30}{2}$	15	84375	5 Units.
Excavating and filling in	1	125	$\frac{30}{2}$	15		
XI(c) Pumping to relieve pressure from outside of piling.						
II Petty supervision and contingencies.						
Nil.						
II(a) Petty contingencies and unforeseen items.						
(b) Constructing a ramp and plat form of reinforced concrete of average depth of 1'-4", stone broken to $\frac{3}{4}$" mesh, proportions 1 cement, 2 sand, 4 broken stone including forms etc. complete according to p						
~~Platform~~.						

ESTIMATE FORM—Detail Measurements, etc.

Detail of work. (1)	Number. (2)	Measurements in feet. Length. (3)	Breadth. (4)	Depth. (5)	Area or contents. (6)	Total quantity of each description of work. (7)
XIII(b) contd:-						
Platform.	1	12½	12½		156	
Ramp.	1	22½	8		180	
					336	
Deduct for corner of platform.	1	8	4		16	
			2		320	320 S.ft.
(c) Painting tide gauges on walls at side of gates.						
Gauges.	2					Nos.2
(d) Pumping including plant and labour.						
To keep down level of water in dock caused by breach under piles.						L.S.
(e) Services of Diver and assistants.						L.S.
(f) Hire of diving gear including freight etc.						L.S.
(g) Supply of Mild Steel plates 4' x ½" thick for driving below piles to seal breach.						
Plates 4' x ½" (h) Mild steel bolts with hexagonal heads and nuts ½" dia x 1½"	2 220	12 x 253 lbs	81.60 lbs.		1959 lbs. 56 lbs	17.5 Cwts. → 0.5 cwts
(j) Country wood planks 1" thick for ~~for~~ shoring up exterior pit at breach.						
Planks.	2x16	12	1	1/8	48	
Vertical struts.	2x12	8	1/3	¼	16	
Cross struts.	2x 6	7	1/3	¼	7	
					71	71 C.ft
(k) Closing breach under piling labour and materials.						L.S.
(l) Pumping from pit outside dock at breach site.						L.S.
(m) Divers and labour for removing boulders under piles at breach site.						L.S.

MARINE FORM No. 6.

ESTIMATE FORM—Abstract. a

Quantity. (1)	Description of work. (2)	Rate. (3)	Per (4)	Amount. (5)	Total. (6)
137000 C.ft.	Vide item I(a) of detailed estimate.	18/15/-	1000 C.ft.	2612	
153000 C.ft.	Do. I(b) do.	10/ 8/-	,,	1606	
9450 C.ft.	Do. I(c) do.	5/ 9/-	100 C.ft.	526	
17000 C.ft.	Do. II(a) do.	80/-/-	,,	13600	
360 C.ft.	Do. II(b) do.	2/-	C.ft.	720	
160 C.ft.	Do. II(c) do.	1/8/-	C.ft.	360	
25500 C.ft.	Do. II(d) do.	70/-/-	100 C.ft.	17850	
28150 C.ft.	Do. II(e) do.	55/-/-	,,	15483	
430 C.ft.	Do. III do.	2/-/-	C.ft.	860	
512 S.ft.	Do. IV(a) do.	14/-	S.ft.	7168	
970 Lbs.	Do. IV(b) do.	0/4/-	Lb.	243	
24½ R.ft.	Do. V(a) do.	19/-	R.ft.	466	
38½ S.ft.	Do. V(b) do.	1/3/-	S.ft.	46	
No.I	Do. VI(a) do.	L.S.	,,	1635	
No.I	Do. VI(b) do.	L.S.	,,	796	
L.S.	Do. VII(a) do.	L.S.	,,	496	
186 11/14 Cwts.	Do. VII(b) do.	14/-	Cwt.	2615	
118 Tons.	Do. VIII(a) do.	L.S.		25800	
L.S.	Do. VIII(b) do.	L.S.		240	
L.S.	Do. IX(a) do	L.S.		8410	
L.S.	Do. IX(b) do.	L.S.		850	
L.S.	Do. X do.	L.S.		8500	
L.S.	Do. XI(a) do.	L.S.		3097	
85000 C.ft.	Do. XI(b) do.	10/2/-	1000 C.ft.	861	
L.S.	Do. XI(c) do.	L.S.		2900	
Nil.	Do. XII do.				

Carried over total of estimate ... Rs. 117740/-

STATION _____ *Port Officer.*

Dated _____

[P.T.O.

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ESTIMATE FORM—Abstract.

MARINE FORM No. 6.

Quantity. (1)	Description of work. (2)	Rate. (3)	Per (4)	Amount. (5)	Total. (6)
	Brought Forward			117740	
L.S..	Vide item XIII(a) of detailed estimate.	L.S.		1014	
320 S.ft.	Do. XIII(b) do.	3/ 6/-	S.ft.	1080	
Nos.2	Do. XIII(c) do.	7/ 8/-	each.	15	
L.S.	Do. XIII(d) do.	L.S.		5800	
L.S.	Do. XIII(e) do.	L.S.		864	
L.S.	Do. XIII(f) do.	L.S.		290	
17.5 Cwts.	Do. XIII(g) do.	12/-	Cwt.	216	
0.5 Cwts.	Do. XIII(h) do.	20/-	,,	10	
71 C.ft.	Do. XIII(j) do.	1/8/-	C.ft.	107	
L.S.	Do. XIII(k) do.	L.S.		2908	
L.S.	Do. XIII(l) do.	L.S.		950	
L.S.	Do. XIII(m) do.	L.S.		2800	
				133794	
	Deduct value of piles transferred.				
118 Tons to	Negapatam Landing & Shipping Fund	175	Ton.	20650	
				113144	1,13,144/-

Grand total of estimate Rs. 1,13,144/-

STATION Madras,

Dated -12-'39.

14.12.39

~~Port Officer.~~

Assistant Engineer (Marine).

[P.T.O.

District— S. Kanara District.

Port— Mangalore.

Head of Charge—Mangalore Landing and Shipping Fund Act III of 1885.

Name of Work—"Constructing a Dry Dock" at the port of Mangalore.

Amount of Estimates—Rs.1,13,144/-

To be carried out by—The Port Department.

Budget provision— Rs.25,000/- under "Construction of a dry dock" in the Budget Estimate of the Mangalore Landing and Shipping Fund for 1939-'40, plus Rs.20,650/-, being the cost of mild steel interlocking sheet piles transferred to the Negapatam Landing and Shipping Fund Vide Presidency Port Officer's letter No.2735 A/39-2 dated 13-12-1939.

To accompany deviation statement to estimate for constructing a dry dock at Mangalore.

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D A T A - S H E E T.

Quantity	Decription of work	Rate Rs	A.	P.	Per	Amount. Rs	A.	P.
	Item I a of estimate - Earthwork excavating in reclaimed river mud necessitating the use of pans and baskets. with 4 extra lifts and 49 extra leads.							
1000 c.ft.	Agreement rate for 6 extra lifts and 10 extra leads	12	-	-	1000 c.ft.	12	-	-
	Add for 39 additional leads	-	~~3~~	-	lead	7	5	-
						19	5	-
	Deduct for 2 lifts not necessary	-	3	-		-	6	-
						18	15	-
	Item Ib of the estimate. Earthwork excavating as above but with 4 extra lifts and 4 ~~extra~~ extra leads.							
1000 cft.	Agreement rate for 6 extra lifts and 10 extra leads	12	-	-	1000 cft.	12	-	-
	Deduct for 2 extra lifts and 6 extra leads	-	3	-		1	8	-
						10	8	-
	Item No.XI b of the estimate. Earthwork excavating as above but with 2 extra lifts and 4 extra leads.							
1000 cft.	Agreement rate for 6 extra lifts and 10 extra leads	12	-	-	1000 cft.	12	-	-
	Deduct for 4 extra lifts and 6 extra leads	-	3	-		1	14	-
						10	2	-

14-12-39

Assistant Engineer (Marine)

dry dock at Mangalore
Rl R 113144

Circ. 7393 A/39 from the GOI No 2735 A/39 — d 14.12.39

(N) In G.O. No 1946 P&C(Mar) d 19.8.36 an estimate amounting to Rs 118641 for dry dock at Mangalore (for the dredger Gurpur) was sanctioned. The details of the estimate will be found in the abstract at p. 65 of the G.O. & also in cols 3 to 5 of the Comparative statement of differences on pp 12-16 & cols 6-8 ibid give the corresponding figures in the Revised Estimate & cols. 9 & 10 give the excesses & savings in the several items. From p. 16 c.f., it will be seen that the Rl. amounts to Rs. 113144 against the original estimate of Rs 118641 showing an apparent saving of Rs. 5497 on the original estimate. This however really an excess on the original estimate because credits against sale of branches of steel sheet forming had not been taken account of in the original estimate. In fact the original estimate should have been sanctioned for Rs 118641 − 20650 or Rs. 97991 or Rs 98000 roundly. Apart the actual value less of the materials at site

(N) Item VIII p13c

of transfer could not be foreseen, & hence the original estimate must be taken to have been sanctioned as if the steel piles would fetch nothing. Thus the Rs is really in excess of the original estimate by Rs. 113144 – Rs 97991 or Rs. 15153 or about 16 p c

2. Reference is solicited to the last col of the comparative statement in which the explanations are given. The excess occurs mainly under the following heads (excesses over Rs 1000 under each item detailed)

Item	Excess Rs.	Reasons
Earth work (I b–I c)	2254	extra leads for conveyance of spoil; addl earth work brought in by breach under piles & deposited on river bund and excavation in quarry & and latente. p12 c7
M R C work & reinforcement bars (VII a–b).	2011	old rails found insufficient & necessary mild steel bars had to be purchased. p13 c7
Pumping (item X)	2500	Tendered rate. p16 c7
Tying back piles &c (X 1a, b, c,)	2358	on account of nature of soil & great pressure excavation from behind piles & addl pumping found necessary. —do—
construction of ramps & R.C. platforms (XIII b)	1080	no provision in original estimate & had to be provided. —do—
Pumps, steepdown level of water in work caused by breach under piles item XIII (d)	5800	no provision in original Estt. – Heavy rush of water thro' breach under piling with large pressure – addl pumps had to be obtained & maintained during Construction —do—
closing breach under piling, labour tools & plant – XIII k.	2908	Breaches at 2 occasions had to be closed p 15 c7
steendrons & labour for removing boulders under piles	2800	old wharf wall collapsed & hence, then dumped boulders, had to be removed. p 16 c7

It will be seen that the excesses over the original estimated provisions were due to the causes stated in para 2 of the PAO's covering letter & have to be allowed under para 63 of the (Prelty) Standard Specification. The RE may be sanctioned.

3. Under clause 4 of the contract, see p 16 of (F), time is of the essence of the contract the period for completion of the work agreed by the contractor was 9 months, see p. 17 ibid. But it has taken 2½ years to complete the work - assuming that the work was started early in 1937 & completed in the middle of the year. (It is understood that the work was completed in June last). The estimate is kept open because payments have yet to be made according to the R.S. (Rs provisional) Bill estimate of some under para 59 of the Standard Preliminary Specification was given by the PAO in view of the unforeseen circumstances met with during execution

4. A draft order is submitted. Seven days time is required at p 16 cf

181239

15

C.F.16.

DRAFT FOR APPROVAL.

P.W.(Mar.)

	Date.	Initials.
When received for fair copying		
When copied		
When examined		
When signed		
When despatched.		

SUBJECT:—

Port - Mangalore. Construction of a dry dock. Revised estimate sanctioned.

READ AGAIN G.O. 1946 P.W.(Mar), dated 19-8-1936. (IV)

" " " 19.

READ *ALSO*:—

C No. 7393A/39 From the P.P.O., No. 2735A/39-1 dated 14-12-1939. CF

" " " " " 19.

" " " " " 19.

~~Order~~ ~~Resolution~~ Ms. ~~Rout.~~ No. 2891, dated 19/12/1939.

The R.E. amounting to Rs 1,13,144 for constructing a dry dock at Mangalore is sanctioned in supersession of the estimate of Rs 118641 sanctioned in G.O. No. 1946 P.W.(Mar.) of 19.8.36.

23/18/12

M 18/12/39

18/12

Pp 12-16 C.F.

(IV)

The P.P.O (with the comparative statement) of C.F.A.

Dpd. by Van / Peon / Messenger with under ... initials. 19/12/39

Dft.

Original of the supplemental Schedule sent to the P.P.O office

Dgfd M 15/1

18/12

Supplementary Schedule to accompany agreement accepted in G.O. Ms. No. 2865, Public Works (Marine) dated 12th December 1923

SCHEDULE A.

SCHEDULE OF RATES AND APPROXIMATE QUANTITIES.

(*a*) The quantities here given are those upon which the lump-sum tender cost of the work is based, but they are subject to alterations, omissions, deductions or additions as provided for in the conditions of this contract and do not necessarily show the actual quantities of work to be done. The unit rates noted below are those governing payment for extras or deductions for omissions according to the conditions of the contract, as set forth in the Preliminary Specification of the Madras Detailed Standard Specifications and other conditions or specifications of this contract.

(*b*) It is to be expressly understood that the measured work is to be taken nett (notwithstanding any custom or practice to the contrary) according to the actual quantities when in place and finished according to the drawings or as may be ordered from time to time by the ~~Executive Engineer~~ Presidency Port Officer and the cost calculated by measurement or weight, at the respective prices, without any additional charge for any necessary or contingent works connected therewith. The rates quoted are for works in situ and complete in every respect.

Item No.	Probable quantity. Figures.	Probable quantity. Units.	Description of work.	M.D.S.S. No.	Rate. Words.	Rate. Figures. RS.	A.	P.	Unit. Words.	Amount. Figures. RS.
I(a)	137000	137	Earthwork excavating foundation in reclaimed river mud and silt (slushy) necessitating the use of pans and baskets including 4 extra lifts of one yard and 49 extra leads of 10 yards each.		Rupees eighteen and annas fifteen only	18	15	-	Two thousand six hundred and twelve only.	2612 - -
I(b)	153000	153	Earthwork excavating foundation in reclaimed river mud and silt (slushy) necessitating the use of pans and baskets including ~~xxxx~~ 4 extra lifts of 1 yard and 4 extra leads of 10 yards each.		Rupees ten and annas eight only	10	8	-	One thousand six hundred and six only	1606 - -
									carried over	4218 - -

Date (Signature of Contractor)

Item No.	Probable quantity. Figures.	Probable quantity. Units.	Description of work.	M.D.S.S. No.	Rate. Words.	Rate. Figures. Rs.	A.	P.	Unit. Words.	Amount. Figures. Rs.	A.	P.
									Brought Forward	4218	-	-
I(c)	9450	94.50	Excavating foundations in quartz and hard laterite.		Rupees five and annas nine only.	5	9	-	Five hundred and twenty six only.	526	-	-
II(b)	360	1 c.ft	Keel blocks in reinforced concrete, stone broken to $\frac{3}{4}$" mesh (maximum) proportion 1 cement, 2 sand, 4 broken stone. Reinforced with $\frac{1}{2}$" diameter round bars according to plan for blocks size 3' x 2' x1'6".		Rupees two only.	2	-	-	Seven hundred and twenty only	720	-	-
IV(b)	970 lbs	1 lb.	Mild steel wrought and fixed in dock for additional strength due to increased head of water.		Four annas only.	-	4	-	Two hundred and forty three only	243	-	-
V(a)	38½	1 s.ft	Constructing a cover for well of best teakwood planks 1½" thick including necessary beading 2" x 1½" moulded to internal circumference of well and fitting complete.		One rupee and annas three only.	1	3	-	Rupees forty six only.	46	-	-
VII(b)	186 11/14	1 cwt	Supply at site of work of mild steel bars 1" dia. for reinforcement.		Rupees fourteen only.	14	-	-	Two thousand six hundred and fifteen only.	2615	-	-

IX(b)	L.S.		Special repairs to motor plant and machinary					Eight hundred and fifty only.	850
XI(b)	85000	1000 cft	Earthwork excavating in reclaimed river mund and silt (slushy) necessitating the use of pans and baskets including 2 extra lifts of 3 feet and 4 extra leads of 10 yards each.	Ten rupees and annas two only.	10	2	-	Eight hundred and sixtyone only.	861
XI(c)		L.S	Pumping from excavation outside piling on 3 sides of dock to relieve pressure on piles.	L.S.				Two thousand nine hundred only.	2900
XIII (b)	320	1 s.ft.	Constructing a ramp and platform of reinforced concrete. Stone broken to ¾" mesh (maximum) proportion 1 cement, 2 sand, 4 broken stone reinforcement according to plan.	Three Rupees and annas six only	3	6	-	One thousand and eighty only.	1080
XIII (c)	No.2	No.1	Painting tide gauges on walls of docks at side of gates showing feet and tenths in best black and red paint.	Rupees seven and annas eight only	7	8	-	Rupees fifteen only.	15
								Carried over	14,074

Date

(Signature of Contractor)

SCHEDULE A—*cont.*

Item. No.	Probable quantity. Figures.	Probable quantity. Units.	Description of work.	M.D.S.S. No.	Rate. Words.	Rate. Figures.	Unit. Words.	Amount. Figures.
						Rs. A. P.		Rs. A. P.
						Brought forward		1407 4 -
XIII (d)	L.S.		Pumping to keep down level of water in dock caused by breach under piles including plant, bolts and labour complete.		L.S.		Rupees five thousand eight hundred only	5800 - -
XIII (e)	L.S.		For supply of services of European diver and assistants.		L.S.		Eight hundred and sixtyfour only.	864 - -
XIII (f)	L.S.		Hire of diving gear including railway freight and conveyance.		L.S.		Two hundred and ninety only	290 - -
XIII (g)	17.5 cwts.	1 cwt.	Supply of mild steel sheets		Twelve rupees only	12 - -	Two hundred and sixteen only.	216 - -
XIII (h)	0.5 cwts	1 cwt.	~~Supply~~ Supply of mild steel bolts and nuts ½" dia. by 1½" long.		Rupees twenty only	20 - -	Rupees Ten only	10 - -
XIII (i)	71 cft.	1 cft.	Supply of country wood planks and scantlings for shoring up.		Rupee one and eight annas only	1 8 -	One hundred and seven only.	107 - -

8/8/16 H.T.

SCHEDULE A—*cont.*

Item No.	Probable quantity. Figures.	Probable quantity. Units.	Description of work.	M.D.S.S. No.	Rate. Words.	Rate. Figures.	Unit. Words	Amount. Figures.
						Rs. A. P.		Rs. A. P.
XIII (k)	L.S.		Closing breach under steel sheet piling including labour tools and plants.		L.S.		Two thousand nine hundred and eight only	2908 - -
XIII (l)	L.S.		Pumping from pit outside dock at site of breach to admit removal of boulders, including plant, tools, and labour.		L.S.			950 - -
XIII (m)	L.S.		Diver, labour and materials for removing boulders from under piles at breach site.		L.S.			2800 - -
								28019 - -

Rupees Twentyeight thousand and nineteen only.

Sd/J.H. Zarakore
Contractor

Sd/.
Secretary to Government.

1-H-8/36 10

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ESTIMATE FORM.—Comparative Statement of Differences.

Description of work.	Item No.	Original estimate. Quantity.	Rate.	Amount.	Revised estimate. Quantity.	Rate.	Amount.	More.	Less.	Explanation of difference.
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Earthwork excavating foundation in reclaimed river mud and silt (slushy) necessitating the use of pans and baskets with 6 extra lifts and 10 extra leads.	II	-	-	-	-	-	-	-	-	Actual leads due to conditions arising varied from this and are provided for below.
	1	166000	15-0-0	2490	-	-	-	-	2490	
	II a	-	-	-	137000	18-15-0	2612	2612	-	Extra leads for conveyance of spoil to bund of South reclamation.
	II b	-	-	-	153000	10-8-0	1606	1606	-	
Excavating in quartz and hard laterite	III	5400	5-0-0	1350	9450	5-9-0	526	526	-	A large pocket of this soil was met with below surface and removed.
Concrete in cement mortar for reinforced concrete proportions 1:2:4	IIa	17800	85-0-0	15130	17000	80-0-0	13600			Keel blocks were provided under item II a in original estimate but it was found necessary to have portable blocks in concrete and timber and these have been supplied.
Reinforced concrete keel blocks.	IIb	-	-	-	360	2-0-0	720		450	
Timber, keel blocks	IIc	-	-	-	240	1-8-0	360			
Concrete in cement mortar 1:3:6	IId	25700	70-0-0	17990	25500	70-0-0	17850		140	Savings slight.

ESTIMATE FORM.—Comparative Statement of Differences.

Description of work.	Item No.	Original estimate. Quantity.	Rate.	Amount.	Revised estimate. Quantity.	Rate.	Amount.	More.	Less.	Explanation of differences.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
			Rs.	Rs.		Rs.	Rs.			
Concrete in cement mortar 1:4:8	IIe	27800	60-0-0	16680	28150	55-0-0	15483	-	1197	Savings due to tender rate
Cut stone in cement mortar	III	447	2-0-0	894	430	2-0-0	860	-	34	
Supply of dock gates	IVa	448	L.S.	8500	512	14-0-0	7168	-	1089	Excess due to cost of cover for well not provided for in original estimate and additional depth of well by 1½ ft.
Strengthening dock gates	IVb	-	-	-	970 lbs	0-4-0	243			
Constructing section well	Va	23	20-0-0	460	24½	19-0-0	466	3529	-	
-do- Teakwood cover for well.	Vb	-	-	-	38½	1-3-0	46			
Supplying and fitting electric pump.	I	L.S. 2500			L.S.	actuals	1635	-	865	Slight saving in L.S. provision in original estimate.
Constructing pump house	VIb				L.S.	do.	796	-	69	
MRC rails conveying and delivery	VIIa	L.S.		1100	actuals		496	2011		Old M.R.C. rails available found insufficient for reinforcement and necessary mild steel round bars for this purpose had to be purchased, hence excess.
Supply of reinforcement bars	VIIb	-	-	-	186--11 cwt	14/-	2615			
Supply of steel sheet piling	VIII a	153	197/-	30141	118	L.S.	25800		4341	Savings due to less weight required as per tender.
Conveyance & incidentals	VIIIb	L.S.		800	120	2-0-0	240		560	do. freight etc. included in tender rate above.

P.W.D. V.18—28.812—31.7.36 (6).

ESTIMATE FORM.—Comparative Statement of Differences.

Description of work. (1)	Item No. (2)	Original estimate. Quantity. (3)	Rate. (4)	Amount. (5)	Revised estimate. Quantity. (6)	Rate. (7)	Amount. (8)	More. (9)	Less. (10)	Explanation of difference. (11)
			Rs.	Rs.		Rs.	Rs.			
Hire of plant, driving and extraction.	IXa	L.S.	-	9000	L.S.		8410	260	-	Slight excess due to cost of repair to damaged plant caused by sudden inrush of water due to breach under piles at IIA
Repairs to damaged plant.	IXb	-	-	-	actuals		850			
Pumping during construction.	X	L.S	-	6000	L.S.		8500	2500	-	Tendered rate.
Tying back piles etc.	XIa	L.S		4500	actuals		3097			On account of the nature of soil and great pressure it was necessary to excavate from behind piling and to continue additional pumping during construction to relieve piles of back pressure for safety.
Earthwork excavating for tying back	XIb	-	-	-	85000	10-2-0	861	2358	-	
Pumping from outside-do-	XIc	-	-	-	L.S		2900			
Petty supervision	XII	L.S.		1000	-		-		1000	Not required
Unforeseen and contingencies.	XIII a	L.S.		1456	actuals		1014	-	442	Petty unforeseen items and contingencies.
Constructing a ramp and platform of reinforced concrete	XIII b	-	-	-	320	3-6-0	1080	1080	-	No provision made in original estimate for platform for whinch and ramp for lowering materials into dock now provided.
Painting tide gauges	XIII c	-	-	-	2	7-8-0	15	15	-	No provision in original estimate. Tide gauges necessary.
Pumping to keep down level of water in dock caused by breach under piles.	XIII d.	-	-	-	L.S		5800	5800		On account of the very heavy rush of water through breach under piling with a pressure head of 16 ft. additional pumps had to be obtained and maintained during construction.

ESTIMATE FORM.—Comparative Statement of Differences.

Item No.	Original estimate. Quantity.	Rate.	Amount.	Revised estimate. Quantity	Rate.	Amount.	More.	Less.	
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	-	-	-					-	
		Rs.	Rs.		Rs.	Rs.			
		-	-					-	
e		-	-	Actuals		864	864		European diver and assistants engaged
							-		to close breach from inside piling and
		-	-	do.		290	290		and to remove boulders.
				-		-			
g.		-	-	17.5. cwts	12-0-0	216	216		Materials required in shoring up pile
		-	-	0.5 cwts	20/-	10	10	-	outside piling at site of breach to admit
									of diver and [illegible] removing boulders from
j		-	-	71 cft	1-8-0	107	107	-	Tongued Rafe.
		-	-			820	820	-	The breach was dealt with but blew through
k.		-	-	actuals		2908	2908	-	on 24 occasions before it was finally closed labour engaged day and night on account of danger to work in progress.

ESTIMATE FORM—Comparative Statement of Differences.

Description of work.	Item No.	Original estimate. Quantity.	Rate.	Amount.	Revised estimate. Quantity	Rate.	Amount.	More.	Less.	Explanation of difference.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
			Rs.	Rs.		Rs.	Rs.	Rs.	Rs.	
Pumping from pit outside dock.	XIII 1	-	-	-	L.S.		950	950		Pumping necessary to admit divers and labour to remove boulders.
Skin divers and labour for removing boulders under piles.	XIII m.	-	-	-	L.S.		2800	2800		On account of the collapse of old wharf wall and dumping of stone years ago it was impossible to close breach until these would be removed. Falling in of stone was continual.
Side groove tough steel sheet piles transferred to Negapatam L. & S. Fund					118 tons	175/-	20650		20650	Value of piles fixed in transfer allowing for use and depreciation.
		Total ...		118641			113144	26965	32462	
		Deduct amount of estimate already sanctioned					118641			
		Net amount requiring sanction			Savings on original estimate		5497			

Sanctioned for Rs. (113144) One lakh thirteen thousand one hundred and forty four only only

in supersession of C.R. No. _____ of _____

Sd. A.C.T. Booth,
Executive Engineer.
Assistant Engineer
14-12-39

Sd. K.R. Menon,
Secretary to Government.
18-12-39

Superintending Engineer.

P W D 17—16,239—3 1-7-36 (5)

E. No. 51.

Stage of Progress of the work.

CIRCLE—

DIVISION—

DISTRICT—

ESTIMATE FORM—Comparative Statement of Differences.

To accompany the Revised Estimate No. of 193 for